

SIXPENCE

FEBRUARY 1942

# AMATEUR RADIO

THE  
OFFICIAL ORGAN  
OF THE  
WIRELESS INSTITUTE  
OF  
AUSTRALIA



Published by the Victorian Division

# AMATEUR-RADIO

Vol. 10 No. 2

February, 1942.

## RADIO EQUIPMENT OF THE LUFTWAFFE

By permission of the Ministry of Aircraft Production representatives of the Wireless World were enabled to examine at first hand the radio equipment in a number of crashed and captured German aircraft, and the following details are taken from an article which they wrote on the subject.

The German High Command has obligingly sent a large number of machines for inspection. Many arrived somewhat the worse for wear, but it did not take long to piece together complete and detailed specifications of all their equipment, including radio gear.

On the Me 109 fighter and radio installation is of the simplest type and consists of a single waveband transmitter and receiver continuously variable over the range 2.5 to 3.7 mcs. It is stowed away behind the pilot and the frequency is set before the machine takes off--no re-adjustment is possible while in the air. The useful range is estimated at 30 to 40 miles.

In bombers and fighter bombers, however, radio bulks largely in the aircraft equipment. "Bulk" is the right word for the standardized equipment actually weighs 358 lbs. It is built on the unit system and can be installed in different aircraft according to the requirements of the crew normally carried.

A few of the units such as the HT motor-generator, the DF receiver and its loop, the blind approach receivers and the antenna matching unit are housed in the tail of the machine, but the main transmitters and receivers are compact enough to be mounted on the instrument dash.

The chassis are die castings approximately cubical in shape and honeycombed with cells for valves, coils etc. and channels for wiring. Even the tuning condensers have die cast vanes.

Continuous tuning is possible over both wavebands, but

rapid selection of four spot frequencies is also possible and three can be pre-set and aligned with ground stations while in the air.

The output from each transmitter (about 65 watts) is fed through a low-impedance transmission line to the aerial matching unit in the fuselage. It is noted that the transmitters are designed primarily for CW operation, but there is also some provision for modulation.

The hollow streamlined spar which supports the fixed antenna is of bakelised laminated construction and houses the vertical rod for the horenz type approach beam receivers. The dipoles for the marker beacon receiver are fixed to the underside of the fuselage.

The DF installation has many interesting features though much of it is based on earlier commercial flying equipment. The standard compass is housed in the tail and its bearing, together with the loop setting are superimposed on a repeater dial on the dash.

A very compact "frame" aerial of unorthodox design has been adopted. It consists of a massive powdered iron core of oval section roughly a foot long and 3 inches average diameter, surrounded at intervals by sectionalised windings. Electrically it approaches the efficiency of the conventional large diameter frame and it has the advantage that it can be housed in a comparatively small bulge on the outside of the fuselage.

Three systems of direction finding can be selected by a master switch on the control unit. First, there is the ordinary figure-of-eight polar diagram for general use. Secondly a cardioid response which can be used either for DF or homing. When the latter is in use the frame is set to zero and a reversing cam changes the sense of the loop alternatively for the reception of interlaced 'A' and 'N' signals from the ground station. Thirdly, three signals, which are normally heard in the headphones can be rectified and applied to the visual indicator of the blind approach apparatus so that the pilot can converse with the crew on the internal telephone system, and at the same time keep an eye on his course. Both the tuning of the DF set and the rotation of the loop are effected by flexible wire cables.

Only two types of valves - one receiving and one transmitting are used throughout the system. The receiving valve is a pentode which can be used as a triode, mixer etc. It has side contacts with a ring seal. Inverted valve holders

with a built in socket for the 'top' contact are employed, and as the valve bases are thus flush with the outside of the chassis, a special screw knob is provided to extract the valves.

As far as could be judged, the equipment at present in use by the Luftwaffe, while of sound design and construction, contains nothing fundamentally new or advanced.

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### SALVAGE

#### THE WIRELESS CONTRIBUTION

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In these days when scrap aluminium has become of great importance, it is interesting and instructive to read an editorial comment published in "The Wireless World." The following is taken from the editorial mentioned.

"In normal times few of us find anything good to say of the miser, but during a total war some of his traits are a distinct asset to the community. Anything that prevents waste of materials or human effort, saves shipping space or reduces the demands on our reserves of foreign exchange then becomes a matter of vital importance. For reasons such as these, efforts are now being made to salvage materials that at other times would be allowed to go to waste, either through simple economic considerations or because the salvaging effected would be thought insignificant.

This matter of salvage is as much psychological as material. Few of us can make any great individual contribution to the common cause, but wonders can be worked if everyone cultivates a state of mind bordering on the miserly with regard to waste, and regards every scrap of useful material that can be salvaged or reclaimed as a personal gift to the national war chest.

Generally speaking, radio can make no very spectacular response to the salvage appeal, but what it can do is well worth doing wholeheartedly. There is one type of scrap that is available in the radio industry and that is a very important one. It is aluminium.

There must be tons of aluminium in discarded receivers

dating back to the days when that metal was generally used for chassis construction. Again we expect that there are considerable stocks of almost worthless variable condensers or condenser vanes, many of the 'shaped plate' variety which were in general use at one time. No doubt many firms and individuals carrying out receiver maintenance work have accumulated large numbers of broken down electrolytic condensers, which contain an appreciable quantity of aluminium of the highest purity. When we add the quantities of discarded screening cans, inter-stage screens and even old loud speaker horns which must be available, it will be seen that the total is quite considerable."

May we suggest that our readers look through their "junk piles" and see what can be found in the way of scrap aluminium.

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PAGES FROM THE PAST.

At the conclusion of the Great War of 1914-18, the Wireless Institute was instrumental in having the ban on transmissions lifted. In addition, the Institute had a long fight with the powers that be regarding conditions under which Experimenters would operate and in December 1922, the following Regulations were gazetted:-

"All wireless stations must be licensed by the Prime Minister's Department before they can be legally operated. Provision is made for the following classes of licenses:- Ship station, land station (for inland and isolated localities) coast stations, aircraft stations, aircraft station, portable station and experimental station (transmitting and receiving), the actual fees for which are fixed in respect of each at £1 per annum, while the fee for an experimental receiving station will be 10/-.

Genuine amateur experimenters are to be encouraged, but precautions are taken to ensure the safe working of defence and commercial stations which the indiscriminate use of wireless by amateurs would interfere with. Conditions are laid down regarding the permissible power to be used in cases where transmitting licenses are granted, the wavelengths to be employed and the technical features of receiving apparatus which may be capable of causing interference. Within a radius of five miles from a commercial or defence station no transmitters of the undamped (spark) type will be permitted, but other types of transmitters will be licensed with a power not exceeding 10 watts.

From 5 to 50 miles distance from such a type of station, any system of transmission will be allowed, with power not exceeding 20 watts, while over 50 miles transmitters operating on a power of 250 watts will be licensed. The wavelengths for such transmitting stations will be confined to the following ranges:- 150 to 250 metres for spark, I.C.W., CW. and telephony with a special band

for C.W. and telephony only from 410 to 440 metres. Interference is less likely to be caused on these wavelengths within these limits.

Applicants for experimenters licenses will be required to produce evidence of their technical fitness by experience or training, to conduct experiments usefully and operate their sets satisfactorily, before a licence can be granted. Applicants must also disclose particulars of apparatus they propose to operate. To ensure that all wireless stations are licensed, regular inspections of suspected stations will be made. With a view of enforcing the regulations, every retailer of wireless apparatus will be required to keep a record of the disposal of wireless apparatus, and may not sell any apparatus, unless the purchaser has, or is obtaining a licence.

Provision is also made for broadcasting stations which conduct the latest developments of wireless. Further consideration is being given to the most suitable method of licensing apparatus for the reception of broadcasting items so as to guarantee public satisfaction."

T. High.

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#### SLOUGH HATS AND FORAGE CAPS

We can start off on a high note this month. VK2 Ham gets high award...and I'll bet you all missed it like I did...Sgt. Simpson (VK2ES) has been awarded the British Empire Medal, which is one of the highest distinctions of the War. Now, I suppose we Sydneyites will have to forgive him for all those 20 m. phone chats...life is very hard, sez us. At the time of this bulletin we know no more than that, but will let you know the whys and whens later.

Secondly, dated January 8th, 2TI and myself had letters from Bill Moore, 2HZ, in which he says that all the RAAFWR chaps...for 'home' service says the dope...are all safe and well in Malaya. Those VK2s and 3s who were up in Kota Bharu were evacuated safely. Bill says that dodging "eggs", after the first couple is rather thrilling. I'll bet he's bored from constant repetition, if what we read is correct. Hi! Anyway, its fb to know they are all safe so far, and here's hoping you are all safe at the end, Bill and chaps.

Talking of decorations...here's a story of a VK2 ham which is just heresay, but authentic as far as we know. This laddie is an officer in the A.I.F. Sigs and likes some other hams, after a nice holiday with the gods around Olympus, had a further rest in Crete before taking ship to depart, ahem! When the boat was about to leave, it was found there was no water aboard, so with three men this chap went four miles back through the German lines, secured a supply and managed to reach the ship again safely. Since then he has re-organised the Sigs in Syria...so perhaps the Hams will soon have at least one other Medallist.

Leaving the men for a moment, the lady hams are also in the services and represented by 6 YL who is in the WAAF as W yes, naturally, W/T Op. congratulations Mrs. Harris. We are keeping an eye on 6NL over here for you. I believe Miss 4YL has to help dad with the Women's Fire Fighting Auxilliary. Any news of our other YL Hams??

I hear from 5HG, who only for the War would still be doing "soo Rolly W skeds on 7 Mc that being considered a bit old for Active Service does his Morse with The Naval Auxiliary, so you see, you just can't keep a "real ham" out of things.

As we do not hear much of the VK6s I have been trying to find out just where they are. Here are some brief notes, which I hope are correct, if not, some VK6 please set us right.

VK6SP, Leading Tel. HMAS Geelong. 6TM Air Gunner RAAF, 6ZO Telegraphist HMAS Toowoomba. 6 CC Sergeant, RAAF. I did hear he was at Richmond as is 6NL. Just like 5HG, 6WS teaches 'em Morse at the Yachtsmen's Naval Auxiliary. In the Middle East is 6JG serving as an Air Gunner. VK6s President set his Division a good example being F/O at Parafield. Like many others he would like to do "this R/L", but nothing doing so far. 6 Cy, 6TP, and 6DR are all in the RAN. From the few I have obtained news of it can be safely judged that the VK6 are certainly keeping up a pretty high percentage in the Forces.

From Tasmania very little news comes up this way and the writer would appreciate a letter from one of the VK7s with any news. I hear that 7GT and 7DS are abroad with AIF Sigs, and that 7ER joined the RAAF but that completes my knowledge of the whereabouts of VK7 Hams on Service.

Thanks to 4WL I can let you know some VK4s quite concisely 4RF, 4RF, 4FJ, 4SD, 4EA, 4CJ are in the Navy, 4KK, 4OK, 4RH, 4AH in the RAAF, 4UU and 4JP in the AMF. Now is I only had three lines about each, look at all the news I would have for you.

Once again might I ask all your help with this section. Just a couple of lines about a chap makes news and as I said in the beginning, each of us knows a little, so dig up the old ham spirit and let us have the news...QRA 7B Maloney St. Eastlakes via MASCOT, N.S.W...phone MU1092.

2YC.

STOP PRESS...THE RAAF want W/T Ops Ground once again...so, if there are any of you left, get in touch with RAAF Recruiting Centre....

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## D I V I S I O N A L   N O T E S

### - Notes From Federal Headquarters -

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Census Cards still continue to roll in and at the time of writing approximately 650 cards have been returned, and it is fully expected that at least 1000 replies will be received. Victoria and New South Wales, as would be expected, are leading the field with the greatest number of cards returned with VK3 shading VK2. This is rather surprising, as there are nearly two hundred more hams in N.S.W. than in Victoria. Many enquiries have been made regarding Membership of the Institute, and these have been forwarded on to the various States concerned.

Whilst numerous enquiries have been made regarding Membership, Federal Headquarters is perturbed with the number of replies to the question regarding Membership that state "was once but have not heard anything since outbreak of war" and at the January Executive Meeting, several schemes were discussed that would enable these Amateurs to be attached to some other Division or a central body until such time as the various States were able to overcome the disorganisation caused by the calling up of new age groups. This matter is important and at the present moment considerable attention is being devoted to the matter.

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### NEW SOUTH WALES DIVISION

The thirty-second Annual General Meeting of the Division was held at Y.M.C.A. Buildings on Thursday 15th January.

The Annual Report showed that Divisional activities had been well maintained throughout the year and that on no occasion had it been found necessary to abandon a General Meeting. This speaks volumes for the enthusiasm of Members, and the Divisional Council is appreciative of this support accorded them.

Membership throughout the year showed very little decrease, although revenue shows a slight falling off due to the increasing number of Members going on Active Service.

Upon the adoption of the Annual Report one minute's silence was observed in memory of Sergeant Curle VK2AJB, RAAF, who was accidentally killed in Egypt and Telegraphists Simpson 3SM and Rippon 6GR presumed lost on H.M.A.S. Sydney .

Members will be pleased to learn that Bill Moore 2HZ and his colleagues 2XQ and 2ALW have to date survived the blitz in Malaya. A recent letter from Bill states that he has had a "grandstand view of things" and will have a lot of tales to tell later on. It is understood that 2XQ has had a few adventures, but had managed to come through O.K.



An interesting visitor at Present in Sydney is Laurie Williams 9WL, and it is hoped to have him along at the February General Meeting. Laurie was in Rabaul when the Japs first raided that community and therefore has a first hand knowledge of blitz. After hearing 9WL's reactions to falling bombs, I think that there must be something about certain beverages obtainable in New Guinea that we don't get down here, and I don't mean Lemonade!

At conclusion of General Business a very interesting talk was delivered by Leading Telegraphist Sia Clark upon his experiences in and around the Shaky Isles. "Blue" was followed by Lieutenant Fred Carruthers of Eastern Command Training School, Signal Wing who dealt with the routine and work necessary to turn out an Army Signaller. Upon conclusion both speakers received a hearty vote of thanks.

The next General Meeting of the Division will be held on Thursday 19th February. Black-outs permitting, and it is hoped that 9WL will be present to give members a resume of his experiences during the raid on Rabaul.

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#### VICTORIAN DIVISION

Just a reminder that the next monthly meeting will be held on Tuesday March 3rd...so keep up the attendances even if there is to be a black out...someone has to paint the windows black.

Men are urgently required by the Signals Dept. A.M.F. for work at six stations, 8/- to 9/- per day, operating at least 8 w.p.m., and class 2 men will be accepted. Anyone interested should contact Lt. Hione at Albert Park.

Congratulations this month go to Jim 3ZK, now don't get ahead of me...Jim will be known in future as Uncle Jim, who by the way is still somewhere in VK2 keeping 'crates' in the air.

Ron, 3RN is by this time enjoying all the home comforts of army life...or at least I expect him to be. Ron expects to be a 'crack' CW op when he gets back on the air.. Still in hot water Ron?

Fred 3FR was soon for the first time in months last Tuesday night and seems to be enjoying the army.

3JO...what a story I have to tell about Herb...that is if my conclusions are correct...Who was supposed to post me the notes?

Jim 3NY our worthy?? treasurer reported for medical recently.. passed fit, but the bank still requires him for the time being. Has been playing with yards of black-out material.

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**THE WIRELESS INSTITUTE  
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Meeting Night—First Tuesday in each month.

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The Division meets on the Third Thursday of each month at Y.M.C.A. Buildings, Pitt Street, Sydney, and an invitation is accorded to all Amateurs to be present.

**H A M S !**

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